

D.P.U. 92-278/279/280

In the Matter of the Petitions of New England Power Company pursuant to c. 164, § 72 of the General Laws, for a determination by the Department of Public Utilities that two electric transmission tap lines in the City of Haverhill are necessary and will serve the public convenience and be consistent with the public interest; and pursuant to G.L. c. 40A, § 3, for Department approval of an exemption from the operation of the zoning ordinance of the City of Haverhill for the construction, operation and maintenance of said electric transmission tap lines, modification of existing electric transmission facilities, and additions to an electric substation.

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FOR: NEW ENGLAND POWER
Petitioner

COMPANY

TABLE OF CONTENTS

I.	<u>INTRODUCTION</u>	1
II.	<u>PROCEDURAL HISTORY</u>	2
III.	<u>STANDARD OF REVIEW</u>	3
IV.	<u>DESCRIPTION</u>	8
	A. <u>Need for the Proposed Project</u>	8
	B. <u>The Proposed Project and Alternatives</u>	10
	C. <u>Impacts of the Proposed Project</u>	12
	1. <u>Electric and Magnetic Fields</u>	12
	2. <u>Noise</u>	14
	3. <u>Wetlands</u>	15
	4. <u>Visual</u>	16
	5. <u>Other</u>	17
V.	<u>ANALYSIS AND FINDINGS</u>	18
VI.	<u>ORDER</u>	22

I. INTRODUCTION

On December 31, 1992, New England Power Company ("NEPCo" or "Company") filed three related petitions with the Department of Public Utilities ("Department"). The first petition, filed pursuant to G.L. c. 164, § 72, seeks a determination by the Department that two proposed 345 kilovolt ("kV") electric transmission tap lines in the City of Haverhill are necessary and will serve the public convenience and be consistent with the public interest. This petition was docketed as D.P.U. 92-278. The second petition, filed pursuant to G.L. c. 40A, § 3, seeks exemptions from the operation of the zoning ordinance of the City of Haverhill to allow for the construction, operation and maintenance of the same two proposed electric transmission tap lines and for the modification of existing electric transmission facilities. This petition was docketed as D.P.U. 92-279. The third petition, also filed pursuant to G.L. c. 40A, § 3, seeks exemptions from the operation of the zoning ordinance of the City of Haverhill to allow the Company to construct, maintain and operate additions to an electric substation in the City of Haverhill. This petition was docketed as D.P.U. 92-280. The Company proposes to construct, maintain and operate the two transmission tap lines and to modify existing transmission facilities into the Company's Ward Hill electric substation on Company-owned property, consisting of

approximately 17 acres, on the southerly side of Cross Road in the City of Haverhill (Exhs. NEP-2, at 1; NEP-3, at 1). The proposed substation additions will also occur at the existing Ward Hill electric substation on the same Company-owned property (Exh. NEP-3, at 1).

The Company's petitions indicate that the affected parcel of land is located entirely within an RH High Density Residential District, as defined by the zoning ordinance of the City of Haverhill (Exhs. NEP-2, at 2; NEP-3, at 3). The two proposed tap lines would extend, respectively, for distances of 550 feet and 200 feet (Exh. NEP-2, at 2). The Company stated that the construction, operation and maintenance of the proposed transmission lines, the modifications to the existing facilities, and the use of the land for an electric substation are not permitted in an RH High Density Residential District (Exhs. NEP-2, at 2; NEP-3, at 3-4).¹

¹ The zoning ordinance, Chapter 255 of the Code of the City of Haverhill, at Table 1, page 4, specifies that a private utility, overhead transmission line, 15 kV or over, or a substation, transformer station or similar facility requires a special permit from the Board of Appeals (Exh. DPU-3, as revised). The Company is requesting exemption from this ordinance in order to construct the proposed substation and transmission and distribution facilities (id.). The Company stated that Chapter 255, Table 1, page 3, of the Code of the City of Haverhill provides that a commercial communications tower is not permitted in an RH Residential District (id.). NEPCo is requesting an exemption from this by-law in order to construct a 95-foot substation communications tower (id.).

NEPCo is a public service corporation and an electric company as defined under G.L. c. 164, § 1, authorized to generate, transmit, purchase, sell and distribute electricity (Exhs. NEP-1, at 1; NEP-2, at 1; NEP-3, at 1). New England Power Company, D.P.U. 92-255, at 2 (1994).

II. PROCEDURAL HISTORY

Pursuant to an Order of Notice duly issued on August 31, 1993, the Department conducted a public hearing on the Company's petition in the City of Haverhill on September 22, 1993. At the hearing, the following Company witnesses responded to questions asked by Department staff: Richard E. Dupre, senior engineer in the Company's transmission line engineering department; Nghia H. Lac, NEPCo telecommunications engineer; John W. Martin, senior engineer in the Company's transmission system engineering department; David Therrien, NEPCo senior environmental engineer; Christian P. Brouillard, manager of district engineering for Massachusetts Electric Company in Malden, Massachusetts; and Michael J. Simpson, the project manager, of Black & Veatch, Orlando, Florida (Public Hearing Transcript ("Tr.") at 26-49).

John Ostrowski, Facilities Manager at American Telephone and Telegraph Company ("AT&T"), in North Andover, Massachusetts,

testified in support of the proposed project (Tr. at 22-23). No one else from the affected community attended the hearing.

No petitions for leave to intervene were submitted to the Department. Because all three petitions relate to the same parcel of land, because the standards under the two relevant statutes are similar, and because the three proceedings involve common questions of law and fact, the Hearing Officer issued a Procedural Order on October 14, 1993, consolidating the three proceedings into one docket, D.P.U. 92-278/279/280. The Hearing Officer entered 11 exhibits into the record, consisting of responses to information requests. The Company entered nine exhibits into the record.

III. STANDARD OF REVIEW

In its petitions for zoning exemptions, the Company seeks approval under G.L.

c. 40A, § 3, which, in pertinent part, provides:

Land or structures used, or to be used by a public service corporation may be exempted in particular respects from the operation of a zoning ordinance or by-law if, upon petition of the corporation, the [D]epartment of [P]ublic [U]tilities shall, after notice given pursuant to section eleven and public hearing in the town or city, determine the exemptions required and find that the present or proposed use of the land or structure is reasonably necessary for the convenience or welfare of the public

Under this section, the Company first must qualify as a public service corporation (see *Save the Bay, Inc. v. Department of Public Utilities*, 366 Mass. 667 (1975)), and establish that it requires an exemption from the local zoning ordinance or by-laws. The Company then must demonstrate that the present or proposed use of the land or structure is reasonably necessary for the public convenience or welfare.

In determining whether a company qualifies as a "public service corporation" for purposes of G.L. c. 40A, § 3, the Supreme Judicial Court has stated:

among the pertinent considerations are whether the corporation is organized pursuant to an appropriate franchise from the State to provide for a necessity or convenience to the general public which could not be furnished through the ordinary channels of private business; whether the corporation is subject to the requisite degree of governmental control and regulation; and the nature of the public benefit to be derived from the service provided.

Save the Bay, 366 Mass. at 680.

In determining whether the present or proposed use is reasonably necessary for the public convenience or welfare, the Department must balance the interests of the general public against the local interest. *Id.*, at 685-686; *Town of Truro v. Department of Public Utilities*, 365 Mass. 407 (1974). Specifically, the Department is empowered and required to undertake "a broad and balanced consideration of all aspects of the general public interest and welfare and not merely [make

an] examination of the local and individual interests which might be affected." New York Central Railroad v. Department of Public Utilities, 347 Mass. 586, 592 (1964). When reviewing a petition for a zoning exemption under

G.L. c. 40A, § 3, the Department is empowered and required to consider the public effects of the requested exemption in the State as a whole and upon the territory served by the applicant. Save the Bay, supra, at 685; New York Central Railroad, supra, at 592.

With respect to the particular site chosen by a petitioner, G.L. c. 40A, § 3 does not require the petitioner to demonstrate that its preferred site is the best possible alternative, nor does the statute require the Department to consider and reject every possible alternative site presented. Martarano v. Department of Public Utilities, 401 Mass. 257, 265 (1987); New York Central Railroad, supra, at 591; Wenham v. Department of Public Utilities, 333 Mass. 15, 17 (1955). Rather, the availability of alternative sites, the efforts necessary to secure them, and the relative advantages and disadvantages of those sites are matters of fact bearing solely upon the main issue of whether the preferred site is reasonably necessary for the convenience or welfare of the public. Id.

Therefore, when making a determination as to whether a petitioner's present or proposed use is reasonably necessary for the

public convenience or welfare, the Department examines: (1) the present or proposed use and any alternatives or alternative sites identified (see New England Power Company, D.P.U. 92-255, supra, at 17 (1994); Massachusetts Electric Company, D.P.U. 92-232, at 17-18 (1994); Tennessee Gas Pipeline Company, D.P.U. 85-207, at 18-20 (1986)); (2) the need for, or public benefits of, the present or proposed use (see New England Power Company, D.P.U. 92-255, supra, at 17; Massachusetts Electric Company, supra, at 17-18; Tennessee Gas Pipeline Company, supra, at 6-9); and (3) the environmental impacts or any other impacts of the present or proposed use (see New England Power Company, supra, at 18; Massachusetts Electric Company, supra, at 18; Tennessee Gas Pipeline Company, supra, at 20-25).

After examining these three issues, the Department balances the interests of the general public against the local interest, and determines whether the present or proposed use is reasonably necessary for the convenience or welfare of the public.

With respect to the Company's petition filed pursuant to G.L. c. 164, § 72, the statute requires, in relevant part, that an electric company seeking approval to construct a transmission line must file with the Department a petition for:

authority to construct and use ... a line for the transmission of electricity for distribution in some definite area or for supplying electricity to itself or to another electric company

or to a municipal lighting plant for distribution and sale ... and shall represent that such line will or does serve the public convenience and is consistent with the public interest. ... The [D]epartment, after notice and a public hearing in one or more of the towns affected, may determine that said line is necessary for the purpose alleged, and will serve the public convenience and is consistent with the public interest.²

The Department, in making a determination under c. 164, § 72, is to consider all aspects of the public interest. Boston Edison Company v. Town of Sudbury, 356 Mass. 406, 419 (1969). Section 72, for example, permits the Department to prescribe reasonable conditions for the protection of the public safety. Id. at 419-420. All factors affecting any phase of the public interest and public convenience must be weighed fairly by the Department in a determination under G.L. c. 164, § 72. Town of Sudbury v. Department of Public Utilities, 343 Mass. 428, 430 (1962).

As the Department has noted in previous cases, the public interest analysis required by G.L. c. 164, § 72 is analogous to the Department's analysis of the "reasonably necessary for the convenience or welfare of the public" standard under G.L. c. 40A, § 3. See, New England Power Company, D.P.U. 89-163, at 6 (1993); New England Power Company,

² Pursuant to the statute, the electric company must file with its petition a general description of the transmission line, provide a map or plan showing its general location, and estimate the cost of the line in reasonable detail. G.L. c. 164, § 72.

D.P.U. 91-117/118, at 4 (1991); Massachusetts Electric Company, D.P.U. 89-135/136/137, at 8 (1990). Accordingly, in evaluating petitions filed under G.L. c. 164, § 72, the Department relies on the standard of review for determining whether the proposed project is reasonably necessary for the convenience or welfare of the public under G.L. c. 40A, § 3. Id.

In addition, the Massachusetts Environmental Policy Act ("MEPA") provides that "[a]ny determination made by an agency of the commonwealth shall include a finding describing the environmental impact, if any, of the project and a finding that all feasible measures have been taken to avoid or minimize said impact." G.L. c. 30, § 61. Pursuant to 301 C.M.R. 11.01(3), these findings are necessary when an Environmental Impact Report ("EIR") is submitted by the company to the Secretary of Environmental Affairs, and should be based on such EIR. Where an EIR is not required, c. 30, § 61 findings are not necessary. 301 C.M.R. 11.01(3).³

³ The Secretary of Environmental Affairs determined on February 24, 1994, that an EIR is not required for this project and, therefore, a finding is not necessary in this case under G.L. c. 30, § 61 (Exh. DPU-8).

IV. DESCRIPTION

A. Need for the Proposed Project

NEPCo serves the Haverhill/Merrimack Valley area through its affiliate, Massachusetts Electric Company ("MECo") (Exh. NEP-6, at 2). The Company indicated that, at present, the Ward Hill substation is supplied with high voltage power via three 115 kV transmission lines extending from other substations owned by NEPCo, MECo, or municipal utilities (Exh. NEP-6, at 2-3, exh. JWM-2). The Company stated that one of these three 115 kV transmission lines, designated G133,⁴ extends from an East Methuen substation from where it connects to another 115 kV line which ultimately terminates at a substation in Tewksbury, Massachusetts (id.). The remaining two 115 kV transmission lines serving the Ward Hill substation, designated B154 and C155, extend from the Danvers Municipal substation in South Danvers, Massachusetts and ultimately terminate at a NEPCo substation at Salem Harbor in Salem, Massachusetts (id.).

At the Ward Hill substation, 115 kV power is presently stepped-down through transformers and transmitted via the 23 kV

⁴ The Department notes that line designations used by the petitioner reflect industry practices as used on such documents as the New England Power Exchange System Diagram (March, 1990).

subtransmission and 13.8 kV distribution lines emanating from the substation to the surrounding area (id.).

The Company stated that the need for the proposed project was determined based on New England Power Pool reliability standards and NEPCo supply planning guidelines (Exhs. NEP-6, at 3; DPU-1). To ensure that the area transmission system continues to meet the applicable reliability criteria, the Company's witness, Mr. Martin, stated that NEPCo conducted electrical transmission system studies for the area through the year 2000 (Exh. NEP-6, at 3). Mr. Martin stated that the studies identified transmission system power flows based on forecasted load growth for the years 1992-2005, and simulated various contingencies to determine if the power flows would remain within the capabilities of the system (id.).⁵ Mr. Martin further stated that the results of the studies indicated that under contingency conditions, several 115 kV and two 345 kV transmission lines would become loaded beyond their capabilities between 1995 and 1999 (Exh. NEP-6, at 4-5, exhs. JWM-2, 3). Mr. Martin added that the studies also indicated

⁵ Mr. Martin stated that the capabilities of the transmission system were determined using maximum allowable component temperatures fixed by the manufacturers' design, national standards, and known material properties, as well as the design basis of the transmission lines (Exh. NEP-6, at 3-4).

that voltages at the Ward Hill and King Street substations could exceed allowable limits as early as 1999 during a contingency⁶ (id.).

B. The Proposed Project and Alternatives

To address the above identified deficiencies, NEPCo proposes upgrading its Ward Hill substation by establishing a new 345 kV high voltage supply and modifying the existing 115 kV facilities at the substation for the addition of a 345kV/115kV/24kV, 450 MVA autotransformer^{7,8} (Exhs. NEP-6, at 5; NEP-4; NEP-3). The Company

⁶ During the public hearing held before the Department at Haverhill City Hall on September 22, 1993, Mr. John Ostrowski, the facilities manager at AT&T in North Andover, located approximately one-half mile from the Ward Hill substation, spoke in favor of the proposed project (Tr. at 22-23). Mr. Ostrowski explained that AT&T employs approximately 6,500 people from the greater Merrimack Valley area, and added that AT&T received the 1992 Malcolm Baldrige Award for quality as part of the transmission business unit (id.). Mr. Ostrowski stated that the size of the AT&T plant in North Andover requires quality power on demand (id.). Mr. Ostrowski further stated that the petitioner, as a supplier of that power, has been very successful in enabling AT&T to achieve a high level of quality, and added that procurement of the 1992 Baldrige Award would not otherwise have been possible (id.).

⁷ The Department notes that the term "autotransformer" denotes a particular form of power transformer in which a single winding utilizes one or more taps to provide power at different voltage levels.

⁸ Although plans for the proposed project also include a second new transformer, Mr. Martin stated that, absent a significant increase in load growth, NEPCo's current projections indicate the
(continued...)

stated that the modification would be accomplished by installing two new 345 kV tap lines from a nearby 345 kV transmission line, designated #394, which extends from Seabrook, New Hampshire to Tewksbury, thereby providing the Ward Hill area with a direct connection to the regional 345 kV transmission system (Exhs. NEP-6, at 5; DPU-2). The Company stated that the two tap lines would be 550 and 200 feet in length, a minimum of 30 feet above the ground, and constructed on NEPCo property (Exh. NEP-1).⁹ The Company further stated that the three existing above-ground 115 kV lines at the Ward Hill substation would be relocated, while other existing overhead subtransmission lines would be replaced with cables in underground

⁸(...continued)

second transformer would not be required until 2007 (Exh. NEP-6, at 6). The Company has provided detailed information regarding its proposed initial installation only and the analysis, findings, and decision of the Department herein presented are, therefore, also confined to the proposed initial installation.

⁹ NEPCo indicated that the total estimated construction cost of the two proposed 345 kV tap lines, which includes associated modifications to existing 115 kV transmission lines at the Ward Hill substation, would be approximately \$1,750,000 (Exh. NEP-1). NEPCo itemized the associated construction costs as follows: Right-of-way ("ROW") clearing (\$10,000); poles, towers, and fixtures (\$780,000); overhead conductors and devices (\$470,000); roadway construction (\$10,000); contingency (\$155,000); engineering and legal (\$200,000); and interest during construction (\$125,000) (id.).

duct systems containing manholes for access¹⁰ (Exh. NEP-8). The Company added that the proposed upgrade would also require additional 345 kV and 115 kV switchgear, prefabricated single story buildings, and a microwave tower, as well as various transmission, subtransmission, and distribution line rearrangements and related substation alterations (Exh. NEP-4, at 2-3). The Company's witness, Michael J. Simpson, added that all of the proposed substation work would occur within the existing substation perimeter fence, and all powerline work would be in close proximity to the existing substation on land owned by NEPCo (id.).¹¹

The Company stated that, in addition to the proposed approach, two alternatives were studied to address the transmission system deficiencies on an individual problem-by-problem basis (Exh. NEP-6, at 5). The Company stated that one alternative would require the following improvements: (1) installation of a new 115 kV line on an existing ROW from the Salem Harbor substation to the Ward Hill

¹⁰ The Company's witness, David L. Therrien, stated that six overhead subtransmission lines would be replaced by three underground duct lines accessed via seven manholes (Exh. NEP-8). Mr. Therrien added that the proposed duct lines would total approximately 14,120 feet in length (id.).

¹¹ As required by G.L. c. 164, § 72, the Company provided maps and plans showing the general location of the proposed facilities (Exhs. DPU-1, DPU-5, DPU-9, NEP-1, NEP-2, NEP-3).

substation; (2) reconductoring and resagging the affected portions of two 115 kV transmission lines designated S145 and T146, extending from Tewksbury to Salem Harbor; (3) reconductoring of a Boston Edison Company ("BECo") 345 kV cable from Woburn to North Cambridge, with installation of an additional line extending to a BECo 345 kV cable between North Cambridge and Mystic; and (4) installation of a new 115 kV capacitor bank at the Ward Hill substation (id.). With respect to the remaining alternative, the Company stated that it would extend an existing 115 kV line from the North Dracut area to a West Methuen substation; however, the Company added that an expansion at the West Methuen substation associated with the extension did not prove to be feasible (id. at 6).

With respect to cost, the Company asserted that both alternatives for rectifying the transmission system deficiencies would involve substantially higher costs than the proposed project (id. at 5).

C. Impacts of the Proposed Project

In accordance with its responsibility to undertake a broad and balanced consideration of all aspects of the general public interest and welfare, the Department examines the impacts associated with the proposed project to identify any significant impacts which would likely occur during construction and operation of the proposed project.

1. Electric and Magnetic Fields ("EMF")

NEPCo stated that, at present, three 115 kV supply lines serve the Haverhill area via the Ward Hill substation, and as part of its proposed upgrade of the substation, the 115 kV supply would be reinforced by utilizing a new 345 kV tap and a 345kV/115kV/24kV, 450 MVA autotransformer (Exhs. NEP-6, at 2-3; DPU-11). The Company asserted that, on average, magnetic field levels in the vicinity of the substation would decrease¹² as a result of the proposed project (Exh. NEP-6, at 6). NEPCo's witness, Mr. Martin, stated that such a decrease in the average magnetic field level with the proposed project would be realized as a result of design features including transmission line modifications, positioning, and phasing (Tr. at 38). To support its claim of an average magnetic field decrease with operation of the proposed project, NEPCo provided calculated magnetic field levels in milligauss ("mG") both with and without the proposed project at areas around the substation (Exhs. NEP-9; DPU-5). With operation of the proposed project, NEPCo's calculations indicated that the largest reduction in magnetic field would occur in the area immediately west of the substation (from 39 mG to 10 mG), and the largest increase would occur on the east side of

¹² The Company stated that there would be a slight increase of magnetic field intensity in the immediate vicinity of the transmission line points of entry at the Ward Hill substation (Exh. NEP-6, at 6).

NEPCo's property, approximately 200 feet south of the substation fence (from 72 mG to 82 mG) (id.). The Company indicated that the nearest residence to the south of the substation would be the only residence to sustain a slightly higher magnetic field level (from 19.1 mG to 20.8 mG) as a result of the proposed project (Exh. DPU-5).¹³ The Company added that, because electric fields are based on system voltages which are unaffected by the proposed project, electric fields in the vicinity of the Ward Hill substation would not change (id.).

2. Noise

NEPCo asserted that the noise level emanating from the Ward Hill substation after the proposed upgrade would be less than the ambient noise level (Exh. DPU-5). NEPCo further asserted that the noise contribution from the new autotransformer would be barely perceptible at the nearby residences (id.).

In support of its claims, the Company provided the results of a sound study that it conducted to determine the impact of the proposed

¹³ The Company indicated that the magnetic field calculation made at the nearest residence to the largest expected magnetic field increase on NEPCo property was located at a point southeast of the substation, along the east side of Bradstreet Avenue, on residential frontage (Exhs. DPU-5; DPU-9, attached map #732). Based on the evidence in this proceeding, the Department notes that the magnetic field calculation is referenced to a property location along Bradstreet Avenue away from the associated dwelling, and, therefore, the calculation appears to be conservative.

substation changes on the surrounding community (id., attach. b). The sound study compared measured night time ambient noise levels with calculated levels of substation transformer noise at eight area residences both before and after the proposed changes at the Ward Hill substation (id.). The sound study indicated that the present substation transformer noise is, and with the proposed changes would continue to be, less than the night time ambient noise level at all of the eight residences (id.).

The Company added that the new autotransformer would have a sound level of 15 dbA below the standard level for units of the same nameplate rating and would be located further away from nearby residences than the existing transformers (Exh. DPU-6). The Company's witness indicated that the existing substation yard elevation is approximately ten feet higher in the direction of nearby residences than the lower yard where the new autotransformer would be installed (id.). The company also indicated that the yard elevation change and the existing equipment that would be located between the new autotransformer and the nearby residences would also mitigate the new autotransformer's operating noise (id.).

3. Wetlands

NEPCo stated that the installation of the two proposed tap lines and associated facilities would require the Company to perform construction in wetlands on the north and east sides of the Ward Hill substation (Exh. DPU-5). NEPCo explained that all of the work proposed would occur within an area that is presently maintained as an overhead electric power line ROW (Exh. DPU-1, attachs.). In order to accurately identify wetlands at the Ward Hill substation site, the Company stated that it utilized the services of a wetlands specialist (id.).

The Company stated that the proposed alterations of wetlands would include the clearing and removal of vegetation for the installation of underground conduit systems (Exh. DPU-5). The Company stated that the proposed project would require approximately 14,120 feet of underground duct line utilizing manholes for access, and added that the duct line installation would result in the temporary alteration of approximately 14,390 square feet of wetlands (Exh. DPU-1, attachs.). The Company added that once the duct lines have been installed and the overhead power lines have been removed, the disturbed areas would be stabilized and revegetated (id.).

4. Visual

NEPCo stated that the Ward Hill substation yard is situated approximately 700 feet away from the nearest thoroughfare access way, and added that the surrounding vegetation also aids in concealing the substation (Exh. DPU-5). NEPCo asserted that, as part of the project development process, the Company also gave due consideration to the minimization of visual impacts associated with the proposed project (id.). The Company added that its consideration towards minimizing the visual impacts of the proposed project at the Ward Hill substation resulted in the adoption of the following design parameters:

- (1) a substation yard configuration which did not require the expansion of the existing substation perimeter fence;
- (2) an area of the substation yard which is approximately ten feet lower in elevation for the majority of the proposed additions;
- (3) a low profile arrangement for the 345 kV and 115 kV switchgear;
- (4) conversion of four 23 kV and two 13.2 kV overhead powerlines to underground installations;
- (5) confining new buildings to single story height;
- (6) using only enough height for the proposed microwave tower to enable effective communication;
- (7) a light grey or bare aluminum finish on the surfaces of the majority of new equipment; and

- (8) self-supporting structures for the relocated 115 kV power lines and the two proposed 345 kV tap lines which eliminate the need for guy wires and anchors (Exh. DPU-6).

The Company added that a 95-foot microwave tower would be installed as part of the proposed project (Exhs. NEP-3; NEP-4, at 4). The Company's witness, Michael J. Simpson, stated that the microwave tower is needed to establish a communications link between the substation and other facilities for the purpose of providing metering and monitoring feedback (Tr. at 30). Mr. Simpson also stated that the Ward Hill substation would be continuously monitored to ensure that the associated equipment is functioning properly, and added that the communications link would also be used for system protection (id.). Mr. Simpson further stated that the 95-foot height of the tower was established as the minimum height required for a direct line-of-sight link between the Ward Hill substation and the facility that would be receiving the feedback signals (id.).

5. Other

The Company also noted that other impacts and issues would be associated with the construction and operation of the proposed project. Specifically, the Company's witness, Mr. Nghia H. Lac, stated that the microwave transmitter used to drive the tower-top microwave dish antenna would use 500 milliwatts ("mW") of power, and added that the dish antenna itself would emit a maximum power radiation level of .04 mW per square centimeter (id., at 32).

With regard to traffic impacts, while the Company provided no specific analysis of the overall traffic generated by the proposed project or the relationship of project traffic to existing traffic conditions in the area, NEPCo indicated that a temporary traffic impact could occur due to the transportation of the proposed autotransformer via truck to the Ward Hill substation (Exh. DPU-8). The Company stated that, subsequent to receipt of the Department's order, it would seek transformer installation permits from both the Massachusetts Department of Public Works and the local police for local road transportation of the transformer to the site (id.).

The Company noted that several environmental approvals¹⁴ are

¹⁴ NEPCo stated that it must obtain authorization from the following environmental agencies before any project related work could commence: (1) the Haverhill Conservation Commission, (continued...)

currently being sought, and noted that along with the above stated transformer installation permits, various other approvals would be required and applications therefore would be made following receipt of the Department's order¹⁵ (id.).

V. ANALYSIS AND FINDINGS

NEPCo is an electric company as defined by G.L. c. 164, § 1, authorized to generate, distribute and sell electricity, and a public service corporation under G.L. c. 40A, § 3. New England Power Company, D.P.U. 92-255, at 2 (1994). Accordingly, the Company is authorized to petition the Department for the determinations sought under both G.L. c. 40A, § 3, and G.L. c. 164, § 72, in this proceeding.

G.L. c. 40A, § 3, authorizes the Department to grant to public service corporations exemptions from local zoning ordinances or by-

¹⁴(...continued)

pursuant to G.L. c. 131, § 40, the Wetlands Protection Act; (2) the Massachusetts Department of Environmental Protection, Division of Water Pollution Control, Water Quality Certification; (3) the MEPA office; and (4) the United States Army Corps of Engineers, under § 404 of the Federal Clean Water Act (Exh. DPU-8, attach.).

¹⁵ NEPCo stated that the following permits/approvals would be required following receipt of the Department's order: (1) three communications related licenses: (a) a Federal Communications Commission license; (b) Massachusetts Department of Public Health, radiation control program license; and (c) a local building permit; and (2) a local building permit and a board of health permit for two single-story buildings (Exh. DPU-8, attach.).

laws if the Department determines that the exemption is required and finds that the present or proposed use of the land or structure is reasonably necessary for the convenience or welfare of the public. With respect to the Company's petition pursuant to G.L. c. 40A, § 3, as discussed in Section I, above, the Company seeks exemptions from the operation of certain sections of the zoning ordinance of the City of Haverhill. Based on its review of these sections of the ordinance, the Department concludes that these sections of this ordinance could impede construction and implementation of the Company's proposed substation upgrade, including construction and operation of the proposed electric transmission tap lines. Therefore, the Department finds that the Company's proposed upgrade and related facilities require the petitioned exemptions from operation of certain sections of the zoning ordinance of the City of Haverhill.

Next, under G.L. c. 40A, § 3, the Department examines whether the Company's proposed use of the land and structures as set forth in its petitions is reasonably necessary for the convenience or welfare of the public.

The record indicates that the proposed upgrade of the Ward Hill substation, and the associated transmission reinforcement utilizing two tap lines from the nearby 345 kV transmission line will significantly improve NEPCo's ability to reliably meet the demand requirements of

the greater Haverhill service area. In addition, the record indicates that NEPCo evaluated reasonable alternatives to the proposed project in the process of developing a strategy to supply its service territory with a reliable and efficient supply of electric power.

The record indicates that the lengths of the two proposed 345 kV tap lines are relatively short, 550 feet and 200 feet, and that these tap lines are necessary to bring nearby 345 kV power into the Ward Hill substation as part of the Company's proposed upgrade. The two tap lines would be located on NEPCo property already used for transmission and distribution purposes.

The record further indicates that the Company has considered possible environmental and land use impacts of the proposed Ward Hill substation upgrade that may be of concern to the surrounding community, including EMF, noise, wetland and visual impacts. Finally, the Company has stated that it will enact a number of mitigation measures, including: (1) transmission line positioning, phasing, and other design modifications so as to minimize EMF via the reduction of associated magnetic field levels; (2) substation component configuration ensuring the maximum amount of practical noise reduction following the upgrade, including use of an autotransformer with a sound level rating 15 dbA below the standard level of such devices; (3) stabilization and revegetation of wetland areas temporarily

impacted by construction; and (4) substation configuration ensuring minimization of visual impacts associated with the substation upgrade, including the use of a lower elevation substation yard and conversion of several power lines from overhead to underground.

The Department notes that the record is unclear regarding any potential for appreciable traffic disruptions, which could occur on a temporary basis as a result of construction at the Ward Hill substation. However, on balance the evidence indicates that the Company has considered and addressed a wide range of potential impacts associated with the proposed project.

Thus, with implementation of the mitigation measures proposed by the Company and required in Section VI, below, the Department finds that the general public interest in upgrading NEPCo's Ward Hill substation to supply electric power to the City of Haverhill and the surrounding community outweighs the minimal impacts of the Company's proposed project on the local community. Accordingly, the Department finds, pursuant to G.L. c. 40A, § 3, that the proposed substation additions and related facilities, including the two proposed electric transmission tap lines and the modifications to existing transmission facilities, are reasonably necessary for the convenience or welfare of the public.

In addition, pursuant to Chapter 164, § 72, of the General Laws, a company wishing to build a transmission line is required to file with the Department a petition for authority to construct and use a line for the transmission of electricity for distribution or for supplying electricity to itself. The Department must determine, after the prescribed notice and public hearing, whether "[the] line is necessary for the purpose alleged, and will serve the public convenience and is consistent with the public interest." G.L. c. 164, §72. In making its determination under c. 164, § 72, the Department must consider and weigh all factors affecting any aspect of the public interest and public convenience. Boston Edison Company v. Town of Sudbury, 356 Mass. at 419; Town of Sudbury v. Department of Public Utilities, 343 Mass. at 430.

In its filing under c. 164, § 72, the Company has complied with the requirement of § 72 that it describe the proposed transmission lines, provide diagrams showing their general location, and estimate their cost in reasonable detail.

As stated above in section III, the Department relies on the standard of review for determining whether the proposed project is reasonably necessary for the convenience or welfare of the public under G.L. c. 40A, § 3, in evaluating petitions filed under G.L. c. 164, § 72.

Therefore, based on the record in this proceeding, and the above analysis, and with implementation of the mitigation measures proposed by the Company and required in Section VI, below, the Department finds, pursuant to G.L. c. 164, § 72, that the two proposed electric transmission tap lines are necessary for the purpose alleged, will serve the public convenience, and are consistent with the public interest.

VI. ORDER

Accordingly, after due notice, hearing and consideration, it is hereby ORDERED: That the proposed two new 345 kV tap lines, as described in the Company's petition and exhibits, are necessary for the purposes alleged by the Company, and will serve the public convenience and are consistent with the public interest pursuant to G.L. c. 164, § 72; and it is

FURTHER ORDERED: That the Company's petitions be allowed and that the proposed additions and related facilities, as described in the Company's exhibits on file with the Department, be exempt from the operation of the following sections of the zoning ordinance of the City of Haverhill, pursuant to G.L. c. 40A, § 3, to the extent that the additions and related facilities are used for electric power transmission purposes:

Chapter 255 of the Code of the City of Haverhill, Table 1, page 4;
and Chapter 255 of the Code of the City of Haverhill, Table 1, page 3;
and it is

FURTHER ORDERED: That the Company shall comply with the
following requirements:

(1) That the Company shall take all necessary measures to ensure
that the Ward Hill substation site is appropriately graded, and that pre-
existing cover vegetation is restored, where practical, and that all
construction debris, including any site preparation and excavation
debris, shall be removed from the site upon completion of the proposed
construction;

(2) That the Company shall take all necessary measures to
preclude unauthorized entry of the Ward Hill substation, both during
and after construction hours;

(3) That the Company shall take all necessary measures to ensure
that any disruptions to local traffic, due to the construction at the
Ward Hill substation, are minimized to the greatest extent possible;
and

(4) That the Company shall take any necessary measures to ensure
that construction equipment and materials do not arrive at the Ward
Hill substation site before 7 a.m. on any day; and it is

FURTHER ORDERED: That the Company shall obtain all governmental approvals necessary for this project before its construction commences; and it is

FURTHER ORDERED: That the Secretary of the Department shall transmit a certified copy of this Order to the City Clerk of the City of Haverhill; and that New England Power Company shall serve a copy of this Order upon the Conservation Commission, Planning Board, and Board of Selectmen of the City of Haverhill within five business days of its issuance and shall certify to the Secretary of the Department within ten business days of its issuance that such service has been accomplished.

By Order of the Department,

Kenneth Gordon, Chairman

Barbara Kates Garnick,

Commissioner

Mary Clark Webster,

Commissioner

Appeal as to matters of law from any final decision, order or ruling of the Commission may be taken to the Supreme Judicial Court by an aggrieved party in interest by the filing of a written petition praying that the Order of the Commission be modified or set aside in whole or in part.

Such petition for appeal shall be filed with the Secretary of the Commission within twenty days after the date of service of the decision, order or ruling of the Commission, or within such further time as the Commission may allow upon request filed prior to the expiration of twenty days after the date of service of said decision, order or ruling. Within ten days after such petition has been filed, the appealing party shall enter the appeal in the Supreme Judicial Court sitting in Suffolk County by filing a copy thereof with the Clerk of said Court. (Sec. 5, Chapter 25, G.L. Ter. Ed., as most recently amended by Chapter 485 of the Acts of 1971).